

AMENDMENTS TO THE CLAIMS

1. (Original) A method comprising:
capturing an image of a tissue microarray at a first magnification, the tissue microarray including a plurality of disks, each disk including a sample of a biological specimen;
locating a first group of disks from the plurality of disks using one or more visual features of the first group of disks;
identifying a grid defined by the first group of disks;
locating a second group of disks from the plurality of disks using the identified grid to locate disks which do not include the one or more visual features of the first group of disks;
capturing an image of each one of the first group of disks and the second group of disks at a second magnification; and
storing the captured images.
2. (Original) The method of claim 1 wherein identifying a grid comprises applying a Hough transformation to locate one or more gridlines having one or more intersections.
3. (Original) The method of claim 2 wherein locating a second group of disks comprises selecting locations at the one or more intersections which do not include any of the first group of disks.
4. (Original) The method of claim 1 wherein locating the first group of disks comprises convolving the image of the tissue microarray with a disk template that includes the one or more visual features.
5. (Original) The method of claim 1 further comprising quantitatively analyzing the captured images of each one of the first group of disks and the second group of disks to obtain quantitative data.
6. (Original) The method of claim 5 further comprising storing the location and the quantitative data for each one of the first group of disks and the second group of disks in a database.

7. (Original) The method of claim 6 further comprising providing access to the database over a network to one or more remote clients.
8. (Original) The method of claim 1 wherein capturing the image of the tissue microarray at the first magnification further comprises combining a plurality of images of a plurality of portions of the tissue microarray.
9. (Original) The method of claim 1 wherein a robotic microscope is employed to capture the image of the tissue microarray and to capture the image of each one of the first group of disks and the second group of disks.
10. (Currently amended) The method of claim 1 wherein the robotic microscope is accessible over a network.
11. (Original) The method of claim 1 wherein the method is performed by a robotic microscope under control of a computer program without user intervention to autonomously capture and archive magnified images of each disk in the tissue microarray.
12. (Original) The method of claim 11 further comprising autonomously analyzing each captured image and storing a result of each autonomous analysis.
13. (Original) The method of claim 1 wherein the one or more visual features include matching to a disk template.
14. (Currently amended) A computer readable medium coded with machine-executable instructions for causing a data processing apparatus to perform a method ~~product~~ comprising:
 - ~~computer-executable code for~~ controlling an imaging device to capture an image of a tissue microarray at a first magnification, the tissue microarray including a plurality of disks, each disk including a sample of a biological specimen;
 - ~~computer-executable code for~~ locating a first group of disks from the plurality of disks using one or more visual features of the first group of disks;
 - ~~computer-executable code for~~ identifying a grid defined by the first group of disks;

~~computer-executable code for~~ locating a second group of disks from the plurality of disks using the identified grid to locate disks which do not include the one or more visual features of the first group of disks;

~~computer-executable code for~~ controlling the imaging device to capture an image of each one of the first group of disks and the second group of disks at a second magnification; and

~~computer-executable code for~~ storing the captured images.

15. (Currently amended) The computer readable medium ~~program-product~~ of claim 14 wherein in said method said step of identifying a grid comprises applying a Hough transformation to locate one or more gridlines having one or more intersections.

16. (Currently amended) The computer readable medium ~~program-product~~ of claim 15 wherein in said method said step of locating a second group of disks comprises selecting locations at the one or more intersections which do not include any of the first group of disks.

17. (Currently amended) The computer readable medium ~~program-product~~ of claim 14 wherein in said method said step of locating the first group of disks comprises convolving the image of the tissue microarray with a disk template that includes the one or more visual features.

18. (Currently amended) The computer readable medium ~~program-product~~ of claim 14 wherein said method further comprises~~comprising computer-executable code for~~ quantitatively analyzing the captured images of each one of the first group of disks and the second group of disks to obtain quantitative data.

19. (Currently amended) The computer readable medium~~-method~~ of claim 18 wherein said method further comprises~~comprising computer-executable code for~~ storing the location and the quantitative data for each one of the first group of disks and the second group of disks in a database.

20. (Currently amended) The computer readable medium~~method~~ of claim 14 wherein in said method the imaging device is a robotic microscope.

21. (Original) A system comprising:
- capturing means for capturing an image of a tissue microarray at a first magnification, the tissue microarray including a plurality of disks, each disk including a sample of a biological specimen;
 - first locating means for locating a first group of disks from the plurality of disks using one or more visual features of the first group of disks;
 - identifying means for identifying a grid defined by the first group of disks;
 - second locating means for locating a second group of disks from the plurality of disks using the identified grid to locate disks which do not include the one or more visual features of the first group of disks;
 - the capturing means further for capturing an image of each one of the first group of disks and the second group of disks at a second magnification; and
 - storing means for storing the captured images.
22. (Original) A system comprising an imaging device and a computer, the imaging device responsive to control signals to provide images at a specified magnification and a specified location within a tissue microarray, and the computer providing the control signals to the imaging device and receiving the images provided by the imaging device, the computer configured to locate a first group of disks on the tissue microarray within an image of the tissue microarray captured at a first magnification by applying a convolution of the image of the tissue microarray with a template, and the computer further configured to locate a second group of disks on the tissue microarray within the image of the tissue microarray using the coordinates of a grid obtained from the first group of disks.
23. (Original) The system of claim 22 wherein the computer communicates with the imaging device through a local area network.
24. (Original) The system of claim 22 wherein the computer communicates with the imaging device through an internetwork.
25. (Original) The system of claim 22 wherein the computer includes a voice-activated command system for receiving and processing user input.

26. (Original) The system of claim 22 further comprising a database for storing, for each disk of the first group of disks and the second group of disks, an image of the disk, a location of the disk, and a quantitative analysis of the disk.

27. (Original) The system of claim 26 wherein the database is accessible from one or more remote computers through an internetwork.

28. (New) The method of claim 1 wherein said one or more visual features comprises one or more visual shape features.